REMARKS

Claims 3-6, 8-10, 13-17 are pending in this application. By this Amendment, claims 3, 6, and 9 are amended, claims 1 and 7 are canceled without prejudice to or disclaimer of the subject matter recited therein, and claims 13-17 are added. No new matter is added.

Applicant acknowledges with appreciation the indication of allowable subject matter in claims 3, 6, and 9. Claims 3, 6, and 9 are now rewritten in independent form including all of the features of the base claim and any intervening claims. Claim 6 is also revised for clarity. No new matter is added. Accordingly, claims 3, 6, and 9 and claims 16-17 dependent therefrom are in condition for allowance.

The Office Action rejects claims 1, 4-5, and 7-8 under 35 U.S.C. 102(b) over U.S. Patent No. 3, 767,949 to Newill. This rejection is respectfully traversed.

Claims 1 and 7 are canceled and their subject matter rewritten into new independent claim 13. No new matter is added.

Independent claim 13 recites, *inter alia*, an air cooled bearing, comprising: rolling elements; a bearing cage for retaining the rolling elements of the bearing, the bearing cage rotating in a first direction; and means for imparting a swirl component to cooling air and directing the cooling air towards and through the bearing cage with the swirling component being directed in substantially the same direction as the first direction (i.e., the same as the rotation of the bearing cage in use), the means for imparting a swirl component comprising at least one vane.

The Office Action refers to "vanes 67" of Newill as corresponding to Applicant's swirl means. Applicant respectfully disagrees.

"[V]anes 67" are not found in the Newill specification or in the drawings. Applicant assumes that the Examiner meant to refer to oil lubricant thrower 76. However, lubricant thrower 76 is merely "an annular disc... supported upon a ... second end portion 55a of the

armature shaft 24a" (column 5, lines 40-42). Applicant respectfully submits that the Office Action comes to an erroneous conclusion as to the function and effect of lubricant thrower 76.

The lubricant thrower 76 merely creates a mist of lubricant by throwing oil droplets radially outwards. Newill discloses that the lubricant thrower 76 throws or sprays the lubricating coolant in a centrifugal manner (column 5, lines 48-53). Being a plain disc, the oil is only directed outward. A "swirl" component, even if created, would be negligible. Moreover, the rotation of component 76 will also not introduce an axial component directing air towards and through the bearing as claimed in claim 13. Therefore, Newill fails to teach each and every feature of claim 13.

The Office Action also asserts that plates 78a in Newill serve as vanes that draw air through bearing 52.

Although Newill discloses that the alleged vane (fan 78) "serves to draw the mist of lubricant provided by the lubricant thrower 76 through and about the bearing" (column 6, lines 21-23), because fan 78 is on the downstream side of the bearing, it sucks air through the bearing. Therefore, it is not in a position to impart a swirl component to air on the upstream side of the bearing directed towards the bearing with the swirl component.

To the contrary, vanes 28 of Applicant's invention are on the upstream side of the bearing and are therefore in the proper position and shape to impart swirl to cooling air directed toward and through the bearing in the same direction as the cage rotation. Nothing in Newill teaches or suggests placing a swirl component to the incoming air to match the direction of rotation of the bearing cage. Therefore, Newill fails to also teach this feature of claim 13. Accordingly, this claim and claims dependent therefrom are not anticipated by Newill.

With respect to dependent claim 8, because there is not any teaching of a swirl component to the incoming air and the rear fan 78a would only appear to draw a straight flow

of air, the recited relationship is not taught by Newill. Withdrawal of the rejection is respectfully requested.

The Office Action rejects claims 1, 4-5, and 7-8 under 35 U.S.C. 102(b) over U.S. Patent No. 2,950,943 to Forrest. This rejection is respectfully traversed.

Claim 13 is discussed above. In the structure disclosed by Forrest, oil slinger arms 30 act to circulate air within chamber 24. However, Forrest does not consider any rotational component in the direction in which the cooling air is circulated, merely that the movement or agitation of the air (either towards or away from the fan) will produce cooling additional to that caused by the lubricant mist. Forrest mentions an increased cooling due to air circulation (column 3, lines 4-5), but also mentions that "the lubricant is in suspension in the air and is blown toward the bearing" (column 2, lines 61-62).

The Forrest bearing chamber appears to be effectively closed to the entry of air from outside housing 14 (Fig. 1). The only return path for any air passing through the bearing appears to be through the lubricant return channels 33, 34, and lubricant reservoir 25. Therefore, it is not clear how the air within housing 14, in practice, is able to circulate through the bearing to a significant extent. Rather, because of the express teaching to use blades with opposite pitch, the presumed purpose is to agitate the air circulated within the housing and provide the oil mist to the bearings.

Accordingly, Applicant respectfully submits that claim 13 is patentably distinct from the applied reference. Claims 4-5, 8 and 14-15 are allowable at least for their dependence on allowable base claim 13, as well as for the additional features they recite. Withdrawal of the rejection is respectfully requested.

The Office Action rejects claim 10 under 35 U.S.C. 103(a) over U.S. Patent No. 2,709,567 to Wood in view of Forrest. This rejection is respectfully traversed.

Although Wood teaches circulating of air through a bearing, Wood discloses that the cooling air flows radially inward through openings 97 and 98, and outwardly through the bearings 18 and 21. Therefore, both slinger discs 26 and 32 are positioned on the downstream side of the bearing. Consequently, they both receive drawn cooling air through the associated bearing and do not direct air towards the bearing. Thus, discs 26 and 32 cannot impart a swirl component to the air on the upstream side of the bearing. If anything, Wood teaches away from the invention and clearly fails to appreciate problems solved by the invention.

Forrest is discussed above. Even if combined, Forrest fails to overcome the deficiencies of Wood with respect to independent claim 13 because neither reference appreciates the problem solved or teaches to direct cooling air towards and through an air cooled bearing with a swirl component oriented with a substantially same direction as rotation of the bearing cage. Because claim 13 defines over the alleged combination, claim 10 is allowable for its dependence on claim 11 and for the additional features recited therein. Withdrawal of the rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 3-6, 8-10 and 13-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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